(Rogue River Valley) has been comparatively recent. The writer found it for the first time in the summer of 1910, but it was thought to be of slight importance at that time and little attention was given it. Since that time, however, it has been very conspicuous in many pear orchards throughout the valley, and its effect upon the trees was so noticeable this season as to attract general attention.

It is interesting to note that Parrott[1] makes mention of it as very common on apple foliage in the United States, but does not seem to consider it a serious pest. However, he states that "*Epitrimerus pyri* and *Phyllocoptes schlechtendali* have been quite numerous and appear to be more common here than on the continent." However, he adds, "The behavior of these two species in the future is a matter of interest, as both seem to have possibilities of developing to greater economic importance." In SCIENCE (N. S., XXIII., 576) he states that *Phyllocoptes schlechtendali* has been detected only on apple foliage. However, the writer has noted that apple foliage is not seriously attacked, while the foliage, terminals of twigs, and frequently the fruits of the pear are most subject to injury. In fact, the presence of the mite on apple foliage seems to be of little importance, as no serious injury because of its presence has ever been observed.

In this district this mite seems to be of economic importance to the pear growers. The injury resulting from its presence in the pear orchards is generally apparent during the latter part of June or early July. The foliage has a peculiar rust or russet appearance on the under side and is also somewhat curled, as though by drought. There may be some slight russeting on the upper side, but this is rather uncommon. The terminals of shoots are also attacked and have the same brownish appearance of the under surface of the foliage. Where the attack is serious, the whole tree has a brownish appearance and the trouble has been given the local name "rusty leaf" by the fruit growers. During the latter part of July and through the month of August, badly injured trees shed the foliage from their terminals. The terminals have a somewhat shriveled appearance, the epidermis being brownish-black or black. Very often the injured epidermis is cracked or broken, due to the expansion of the growing tissue beneath. The fruit is also attacked and is russeted and cracked in the same manner as the terminals.

The injury to young pear trees is usually greater than to older bearing ones. Sometimes almost complete defoliation of the young tree results before it has had its season's growth, and besides the epidermis of the growing shoots has been injured. Fortunately, this mite is very easy to control. As in the case of all of our economic species attacking plants, the use of lime-sulphur, dry sulphur, oil emulsions, etc., will completely control it. Since it is a surface feeding mite producing no galls, it would seem that there should be no trouble in eradicating it.

The writer wishes to thank Dr. Nathan Banks, of the U. S. National Museum, for verifying his identification of the species.

P. J. O'GARA

OFFICE OF THE PATHOLOGIST AND ENTOMOLOGIST,
MEDFORD, OREGON,
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[1] Bulletin No. 283, New York Agricultural Experiment Station, 1906.

A PARAFFIN BATH WITH CONCEALED THERMO-ELECTRIC REGULATOR

ONE of the disadvantages about the ordinary paraffin bath is the exposed thermo-regulator. By attaching a covered moat to the back and one side of an oblong bath and inserting a thermo-electric regulator similar to one described by Long[1] patterned after Mast[2] there need be no delicate and breakable parts above the bath.

The bath described is heated by two incandescent lamps, one a four-candle, the other a

[1] Long, J. A., "The Living Eggs of Rats and Mice with a Description of Apparatus for Obtaining and Observing Them," Univ. of Cal. Pub. in Zool., Vol. 9, No. 3, pp. 105–136, pls. 13–17.

[2] Mast, S. O., 1907, "A Simple Electric Thermo-regulator," SCIENCE, N. S., 26, 554–556.

two. These are lighted constantly. Another four-candle lamp is connected with the regulator. These are placed in an asbestos-lined box beneath the bath. The whole apparatus surrounded with non-conducting material is packed in a box with a hinged cover. The only surface exposed when the box is opened is the top of the bath. Thick pads cover the moat, as it is lower than the top of the bath. This makes it possible to heat eight cups of paraffin, using at the same time less current than would be used by a single sixteen-candle incandescent lamp. Taking out from or putting into the regulator a small drop of mercury makes it possible to either raise or lower the temperature of the bath. Old lamps can be taken out and new ones put in through holes in the bottom of the box.

Such a bath has been in use more than a month, maintaining a temperature constant (54° C.) to within a fraction of a degree.

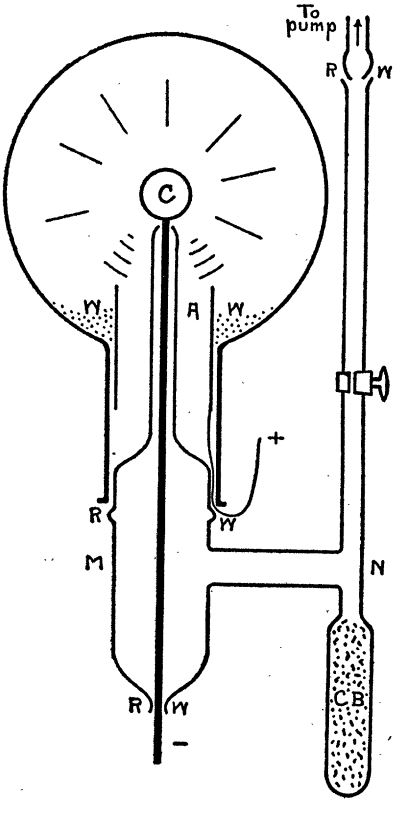
WEBSTER CHESTER

COLBY COLLEGE,
WATERVILLE, ME.

A SIMPLE DISCHARGE TUBE FOR DEMONSTRATION PURPOSES

AT the present time when so much interest is centered on electric discharge phenomena in evacuated tubes it may not be out of place to describe one of the discharge tubes that the writer used recently for class-room demonstration. The experiment is purely qualitative, and in principle contains nothing new. Its aim is to present with simple and easily constructed apparatus some of the phenomena that are usually given with more elaborate and expensive outfits. It does, however, require that the experimenter have access to, and be familiar with, the operation of an ordinary Geissler mercury pump and an induction coil. Aside from these the things needed are found in almost any laboratory and require no more skill to make than the blowing of a glass Tee.

The discharge tube in question is shown in the figure. The bulb may well be a two- or three-liter florence flask. The part to be blown is *MN*. It supports the aluminum rod carrying at its upper end the spherical or oblong cathode, *C*, of the same metal. The anode, *A*, is a cylinder of not too light weight



aluminum foil placed in the neck of the flask as shown. Connection to this is made by a fine copper wire led out through the wax joint, *RW*, at the mouth of the flask. The exhaust tube should contain a glass valve and terminate in a sort of ball and socket joint (to be sealed with wax) so that the apparatus may be readily disconnected from the pump. The charcoal bulb, *CB*, may be dispensed with where liquid air is not available. Liquid air is not a necessity; its use, as is well known, is to hasten the exhaustion. The three joints, *RW*, may be closed sufficiently air-tight by a good grade of red sealing wax.

The various steps, as the exhaustion proceeds, may be vividly shown—the stringy discharge, the Geissler stage, the formation of striæ, the Faraday dark space followed by